

F-76130 Mont-St.-Aignan, Fr.) Effect of glucocorticosteroids on the activity of the urea cycle enzymes in foetal rat liver. *BIOCHIMIE (PARIS)* 59(1): 91-95, 1977. [In Fr. with Fr. and Engl. summ.]—The 5 urea cycle enzyme activities of rat liver were followed during the late fetal period and the 1st day of life. All 5 enzymes exhibited relatively low activities in fetal liver and a rapid postnatal increase. Lack of glucocorticosteroid (after hypophysectomy in utero) induced decrease of activity of 3 enzymes: carbamyl phosphate synthetase [CPS; EC 2.7.2.2], ornithine transcarbamylase [OT; EC 2.1.3.3] and arginosuccinate synthetase [AS; EC 6.3.4.5]. Treatment with hydrocortisone acetate on decapitated fetuses resulted in a marked stimulation of the activity of 4 of the enzymes: CPS, OT, AS and arginase [EC 3.5.3.1]. Premature induction of CPS activity was obtained after i.p. injection with hydrocortisone acetate at 16.5 days of gestation. Arginosuccinase [EC 4.3.2.1] was also studied.

57013. TAZIMA, ISAO and SAKAE-INOUE. (Dep. Comp. Endocrinol., Inst. Endocrinol., Gunma Univ., Maebashi, Gunma 371, Jpn.) Effect of nerve on morphological integrity and regeneration of transplanted larval urodele limb. *ANNO ZOOLOG. JPN.* 50(4): 231-244, 1977 [recd. 1978].—Using the larval urodele, *Hynobius nigrescens*, the relation between morphological integrity of the transplanted limb, the regenerative capability and amount of innervation was studied by comparing homoplastically transplanted limbs at 2 different parts of the body and by homoplastic implantation of limb sectors. Transplantation caused remarkable muscle atrophy and transplants in the buccal region were poorly maintained as compared with dorsal transplants. Amputation surfaces of the transplants had far less nerves than those for the control. Number of nerve fibers counted was 1/60 to 1/10 of the control in the case of buccal transplants and 1/4 to 1/3 in the case of back transplants. Nerve fibers invading transplant significantly correlated with degree of muscle atrophy. These results were discussed in terms of tropic activity of the invading nerve fibers in the transplants and of the response of stump tissues to the nerve under various experimental conditions.

57014. PASINI, N. (Inst. Immunol., 4100 Zagreb, Yugosl.) A simple lesion-free drop of the chorio-allantoic membrane of the chick embryo. *ANN MICROBIOL. (PARIS)* 128B(4): 547-552, 1977 [recd. 1978]. [In Fr. with Fr. and Engl. summ.]—In the embryonated 4-5 day old chicken egg incubated in the normal vertical position, only the blunt top end, a small part of the egg surface, is covered by the embryo. Soon after rotation of the egg, to the reverted vertical position with the blunt end down, the egg shell is pierced and an artificial air space is formed on the pointed end, which is far from the region occupied by the embryo.

57015. TAI, JUN. (Dep. Med. Chem., Osaka Med. Coll. Takatsuki, Osaka, Jpn.) Studies on tyrosine aminotransferase, adenylyl cyclase, and cyclic AMP phosphodiesterase in chick liver at the early and late embryonic stages. *BULL. OSAKA MED. SCH.* 23(1): 1-13, 1977 [recd. 1978].—Developmental changes in effects of glucagon and theophylline treatments on hepatic tyrosine aminotransferase and in effects of these agents on adenylyl cyclase and cyclic AMP phosphodiesterase in vitro were investigated in 8 and 18 day old chick embryos. In the 8 day chick embryos, no effect of glucagon on tyrosine aminotransferase activity was observed, while theophylline treatment resulted in a 4-fold increase. In the 18 day embryos, however, induction of this enzyme was observed following administration of either agent. Glucagon produced a great stimulation of adenylyl cyclase activity in the 18 day liver, but not in 8 day liver. Nearly all cAMP phosphodiesterase found in livers of 8 day embryos was the  $Ca^{2+}$  protein activator-dependent enzyme; but this enzyme progressively diminished while the independent enzyme progressively increased proportionately with embryonic development. In 18 day embryos little  $Ca^{2+}$ /protein activator-dependent enzyme activity was observed. Both forms of cAMP phosphodiesterase were inhibited by theophylline in vitro. Induction of tyrosine aminotransferase was brought about by the effect of theophylline on cAMP phosphodiesterase activity in chick embryos.

57016. BURLAKOVA, O. V. (Dep. Embryol., M.V. Lomonosov Mosc. State Univ., Moscow, USSR.) Reactions of the retinal epithelium in isolated eyes of the common frog tadpoles. *BIOL. NAUKI (MOSC)* 20(12): 62-65, 1977 [recd. 1978]. [In Russ. with Russ. summ.]—Reactions of pigment epithelium in isolated tadpole (*Rana temporaria*) eyes during different developmental stages were analyzed. Pigment was maximally dispersed 10 min after isolation of the eyes from the organism and was not dependent on pigment granule distribution in melanophores. This pigment distribution remained the same in light and darkness. The cells of the pigment epithelium of the eye when removed from the organism lacked adaptive pigment movements under various light conditions. —L.O.

57017. IMAI, HIROMICHI. (Div. Pathol., Cancer Inst., Okayama Univ. Med. Sch., Tsushima, Okayama, Jpn.) Human embryonic liver cell in culture: A preliminary report. *OKAYAMA IGAKAI ZASSHI* 89(3/4): 237-244, 1977 [recd. 1978]. [In Jpn. with Jpn. and Engl. summ.]—Cells of human hepatoma, hepatoblastoma and human embryonic liver were cultured for the purpose of research on the nature of human liver cells and related diseases. Two cell lines from hepatoma (HLE and HLF) and a cell line from human hepatoblastoma (HUH-6) were established. An attempt was made to culture human embryonic liver. An epithelial cell line was not established from human embryonic liver, but 3 epithelioid cell lines were obtained. Important conditions

to maintain the epithelial cell of liver alive in vitro are the age of the embryo and the freshness of it: the older the embryo, the better the condition the line, and the fresher, the better. Many growth media were tried to find selective growth of liver epithelial cell in vitro. Media were obtained that were suitable, although not completely satisfactory, for maintenance of epithelial cells. Bovine serum is suitable for the maintenance of liver epithelial cell and human serum showed a marked cytotoxic effect on cell growth. An inoculum cell number of living large granular hepatocytes from  $2 \times 10^4$ /ml showed good maintenance of epithelial cells in vitro for 60 days. Five kinds of cells were recognized under the phase contrast microscope: large granular hepatocytes (mature type of liver epithelial cell); small granular epithelial cells (immature type of liver epithelial cell); fibroblasts; endothelial epithelium (Kupffer's cell); and hematopoietic cells due to extramedullary hematopoiesis. Marked proliferation of mesenchymal cells was observed.

57018. SALOMON, DAVID S., YAMEEN ZUBAIRI and E. BRAD THOMPSON. (Lab. Dev. Biol. Anom., Natl. Inst. Dent. Res., Bethesda, Md. 20014, USA.) Ontogeny and biochemical properties of glucocorticoid receptors in mid-gestation mouse embryos. *J. STEROID BIOCHEM.* 9(2): 95-108, 1978.—Adult hepatic and mid-gestation embryonic cytosol fractions prepared from 2 inbred strains of mice, A/J and C57BL/6J, contain macromolecules which specially bind [ $^3H$ ]-dexamethasone with high affinity as determined by Scatchard analysis. The dexamethasone-binding macromolecules may be proteins, since binding activity is destroyed by proteolytic enzymes but not by incubation with nucleases, lipase or collagenase. Binding is dependent upon integrity of -SH (sulfhydryl) groups. Natural and synthetic glucocorticoids compete with labeled dexamethasone for binding sites in adult hepatic and embryonic cytosols. [ $^3H$ ]-triamcinolone acetonide-receptor complexes in adult hepatic and embryonic cytosols sediment as single broad peaks between 7-10S after velocity sedimentation on 10-30% glycerol gradients and elute as 2 distinct binding components following DEAE-cellulose chromatography. [ $^3H$ ]-corticosterone-binding components have also been detected in adult hepatic and embryonic cytosols. Based upon physical and chemical properties, these macromolecules resemble corticosteroid-binding globulin (transcortin) in mouse serum. Ontogenically, receptor proteins were detected in day 12 embryonic cytosols when concentration of receptor sites was significantly higher in A/J embryos (approximately 2-fold) than in C57BL/6J embryos. By days 13 and 14, receptor concentration was equivalent in both.

57019. ARGUELLO, CARLOS, M. VICTORIA DE LA CRUZ and CONCEPCION SANCHEZ. (Dep. Embryol., Inst. Nac. Cardiol., Mexico City, Mex.) Ultrastructural and experimental evidence of myocardial cell differentiation into connective tissue cells in embryonic chick heart. *J. MOL. CELL CARDIOL.* 10(4): 307-316, 1978.—Embryonic cardiac cells originate from a homogeneous population of myocytes which, by differentiation, will form the atria, ventricles, conus and truncus arteriosus. In early stages of chick embryo development (3 1/2 days), the wall of the truncus is formed by a layer of myocardial cells, and at about the 7th day it is formed by layers of fibroblasts, collagen, elastin and smooth muscle. The ultrastructural events which occur during the development of the truncus and the effect of 5-bromodeoxyuridine (BrdU) was studied. Myocardial cells progressively acquire a fibroblastic phenotype. This was shown by continuous diminution in content of myofibrils and increase in collagen, elastin and an amorphous granular material in the intercellular space. 5-Bromodeoxyuridine prevented transformation of the myocardium into fibroblast cells and the truncus remained as a beating structure. Myocardial cells of the truncus are able to differentiate into cells of a fibroblastic type.

57020. MELLOW, A. M., G. V. STOSICH and P. H. STERN. (Dep. Pharmacol., Northwest Univ., Chicago, Ill. 60611, USA.) Dissociation of specific binding of 25-OH-D<sub>3</sub> and resorption in fetal rat bones. *MOL. CELL ENDOCR.* 10(2): 149-158, 1978.—Specific binding of 25-OH-D<sub>3</sub> [25-hydroxyvitamin D<sub>3</sub>] was measured in cytosol prepared from isolated fetal rat bone cells. Binding was significant after 2 h incubation at 0°C and apparently approached a plateau at 4 h. Binding was half-maximal at  $1.7 \times 10^{-10}$  M 25-OH-D<sub>3</sub>. In bone culture 24(R),25-(OH)<sub>2</sub>D<sub>3</sub> which was approximately equipotent with 25-OH-D<sub>3</sub> had approximately the same binding activity. A much weaker competitor for binding was 1,25-(OH)<sub>2</sub>D<sub>3</sub>, which was 2-3 orders of magnitude more active on resorption. Vitamin D<sub>3</sub>, which was inactive in culture, was at least as effective a competitor as 1,25-(OH)<sub>2</sub>D<sub>3</sub>. The cytosol site which specifically binds 25-OH-D<sub>3</sub> apparently was not the mediator of the bone-resorbing activity.

57021. PALEKAR, ANIL G., SIDNEY J. STOLZENBERG and SHIRLY M. MADAN. (100 N. Whisman Rd., 137, Mountain View, Calif. 94043, USA.) Investigation of the occurrence of a contraceptive tetrapeptide in hamster embryos. *FERTIL. STERIL.* 29(6): 686-691, 1978.—The synthetic tetrapeptide H-Thr-Pro-Arg-Lys-OH, the extract of 2-cell hamster embryos and the oviductal contents devoid of embryos failed to show any in vivo antifertility activity. The tetrapeptide was not found in the biologic preparations of embryo extract and remaining oviductal contents. These findings do not agree with those of previous reports.

57022. KONDO, YASUYUKI. (Lab. Amphibian Biol., Fac. Sci., Hiroshima Univ., Hiroshima 730; Jpn.) Behavior of foreign nuclei transplanted into a *Rana nigromaculata* egg and DNA synthesis by them. *JPN J. GENET.* 53(2):